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## TECHNOLOGY-MACHINE-CAPITAL

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Most Marxist discourses understand both technology, the logical discourse around the teleology of accomplished mastery of nature, which turns out to be the decisive orientation for the Western natural sciences, and the technical object, the practical object of the theoretical sciences, as part of the productive forces and not of the relations of production. Whereby it cannot be ruled out, however, that under capitalism the relations of production themselves can mutate into productive forces, as Adorno already pointed out.

It was Hans-Dieter Bahr who, following the 1968 student movement, pointed out that certain philosophical myths persist in Marxist debates on technology: It was the peculiarity of the Promethean myth and each of its previous updates – which include most schools of Marxism – to have grasped technology purely as a productive force and, at the same time, to have integrated technical innovation into a discourse of progress that was linear and emphasized order, in order to present even technology as explosive. This is also evident in the ultra-modernity of Leninism and its later Fordist biopolitics, with which it sought to set in motion – think of the regurgitation of the formula “communism = Soviet power and electrification” (LW 31: 513) – a communist-utopian-technical production of humanity of biocosmic proportions. (Cf. Balibar 2013: 136)

Although Lenin’s epistemological conception still remains entirely committed to realism, i.e., to the recognition of the independent existence of the external world as the primary reference for discursive knowledge, one also finds in him a policy-dominated, prescriptive account of the natural sciences, according to which the task of the theoretical sciences under socialism is to place the laws for manipulating natural objects entirely at the service of society (as opposed to a purely descriptive account, according to which the laws of physics state how objects behave. On this point, see Schlaudt 2014a: 123). In the course of affirming the unfortunate formula “productive force = progress,” the Marxist-Leninist discourse of progress also has no problem whatsoever with the fact that the technical (especially the machine discourses of mechanics), or the syntax of technical objects, turns out to be rational precisely when the forces of the technical display themselves as ordered and ordering relations. Bahr writes: “The technical is an order-keeper par excellence. Its internal discourse shows it not as a productive force, but as a system of order.” (Bahr 1983: 186) This applies equally to theoretical mechanics and to the machine discursivity of cybernetics. And this is not least true for economics and for the neologism “political economy,” a term that in the 19th century refers precisely to the fact that immanent to efficient economic activity is a system of order that inheres the measure of the political. (Cf. Vogl 2015: 40)

In the 19th century, the emancipation of the natural sciences from the tyranny of finitude required the reshaping of physics, which was now to be able to take the place of metaphysics by seizing the concepts of force and energy in order to integrate them into a rational network of knowledge that was already coded in each case. Only in this way it was possible to explicitly write down an axiom that Michel Serres called the first and most important axiom of the 19th century: “The real is rational, the rational is real” (Serres 1993: 77). And corresponding to this in Western philosophy is the axiom: “The real is communicable, the communicable is real” (cf. Laruelle 2010c: 22).

Laruelle’s statement refers to the classical philosophical model of mediated being, which is still prevalent from antiquity to the present, and for which the god Hermes stands, who transports things from and about foreign places. With its hermeneutic mega-machine and its fog of semantic transfers, Western philosophy has related the concepts of rationality and truth to that which is hidden in possibility, yet must and can be uncovered.

It can be assumed that modern natural science always confronts its own object – nature – in the form of mathematics, discourses and material apparatuses/machines. (Cf. Schlaudt 2014a: 68) Thus, one can only speak of technology/technique when material-spiritual production itself has already matured into technology. Following on from this problematic, should we now define

technique and technology less as phenomena constituted by the economy of capital and more as phenomena of industrial societies, as Oliver Schlaudt does, so that we would have to speak of technology as a specific discourse of the mastery of nature under capitalist conditions?

(Schlaudt 2014b: 160) Or is it necessary to insist on the position that the logical rationality of monetary capital or capital-power is already inscribed in the concept of the techno-logical? (Cf. Bahr 1970: 34)

For Simondon or Laruelle, capital-power is linked both to the aspect of individuation of thought and to technologies, insofar as the latter enable an operational circulation of knowledge and at the same time structure a specific axiomatics of signification. And the question always arises as to how such a system of signification can effectuate the production/circulation of capital qua the technical objects. Simondon provides a schema that seeks to comprehensively explain the relation between capital and technology in order to eventually de-mystify capital-power. (Cf. Simondon 2012) For Laruelle, the “sense” of capital-power is ever already linked to a particular mode of thought, while for Simondon, such a “sense” can be mobilized through technical invention, which is itself a mode of thought.

Simondon locates the origin of technology, at least for the Western Occident, in the encounter between technology (the practical use of various devices/machines) and the logos of the theoretical sciences. In contrast to technology, which despite its close relationship to the human remains an autonomous and automatic mode of being and is thus to be understood independently of the human, Simondon conceives of technology or mechanics as a thoroughly human construction.(Ibid.) Technology inaugurates a generative code that structures the correlation between human and nature qua the “laws” of the human, and which is thus to be understood as the direct consequence of the development of human language and the theoretical sciences. Simondon further contends that the “laws” of man have hitherto served exclusively to domesticate and regulate nature, insofar as they could be used to describe and anticipate natural phenomena and to advance the exploitation of labor; strategies that seem possible only if the teleology of mechanical, linear progress can be made permanent. This thinking has finally produced a system that progressively integrates every discontinuum into the continuum of progress, thus preventing the kairos – the aleatoric power of nature – in order to instead incessantly push the anticipation and effectuation of the relations between capital and technology and, at the same time, to reduce the freedom of technology until precisely a new technical invention creates a new code. With the help of mathematics and theoretical sciences, the human species has created the autonomous logos of technology, that is, a chain of theoretical operations that allow a technical system to function effectively. And this implies that the transcendental nomos (law) replaces the ecological code of correlation (between culture and technology; nature and logos) with the economic code (logos and economy). For Simondon, the birth of technology definitely marks the shift from ecological to economic reality (including the cultural superstructure that constitutes the social). However, with Gilbert Simondon, it is also possible to think of an alternative ecology in which there is a constant transformation of ramifications and modes of interconnectedness. And this as a unity of geographical and technical milieu, which Simondon calls cosmogeographical networks. It is necessary to analyze in detail the bond that connects the technical, the political, and the social with the economic

relations in order to grasp the (technological) evolution of money and capital that, qua capitalization, also enacts the quantification of human relations. (Ibid.)

The relation of the human species to the world is fundamentally artificial and technical, it contains a certain configuration of economic and additionally of political, architectural, social and erotic techniques, of agricultural, informational, war techniques, etc. Because there are many kinds of individual techniques and each technique configures a micro-world and at the same time materializes a certain social form of life, there is no essence of the human to report, rather the techniques remain in a certain way (transindividuation with Simondon) autonomous in relation to the human. As already indicated with Simondon, it is not primarily technology, but technology (in its relation to capital), that is adequate to capital without corresponding perfectly with it (adequate-without-correspondence). And technology is by no means to be understood as the completion of technology; rather, by being determined in the last instance by capital, it also forces, as it were, the dispossession of man at least from various old techniques. Technology inheres the logical systematization of techniques efficient for capital and thus operates the leveling of all worlds of alterity. Technology inaugurates an auto-referential discourse on its object, the techniques. It is precisely in this sense that capital is *sui generis* technological, insofar as it forces the profitable organization and operation of the most productive techniques. And determination of technology by capital in the last instance means that the latter is used to increase productivity, as shocking innovative thrusts to re-regulate class struggles, and as new technologies of power. It was precisely the combination of new information technologies with the construction of new derivative financial instruments to raise liquidity that set in motion an economic development in the United States after 2000 that once again gave the country competitive advantages in capital accumulation and allocation over other frontier capitalist countries. In this regard, Detlef Hartmann quotes former Fed President Alan Greenspan: "The process of capital reallocation has been supported throughout the economy by a substantial unbundling of risk in capital markets, made possible by the development of innovative financial products, many of which owe their usefulness to advances in the IT sector." (Hartmann 2015: 69) While it is true that neither technique nor technology can be directly derived from the discursivity of monetary capital, and it is also true that technical objects or machines are to some extent disposable as means, when one speaks of the neutrality of techniques or machines, this can only refer to a specific indeterminacy. One can now ask in which functional mode the techniques function in the context of the material-discursive practices of capital. (Cf. Bahr 1983: 14) Machines/techniques, in this view, inherent specific purposes. Quite provocatively, one can say: technical facts are fossilized ends, and as means, techniques are materialized ends of capital (in the last instance). (Cf. Schlaudt 2014a: 41) It remains urgent, however, precisely not to assume a primary rationality of technology based on the pure means-purpose relation, for at least the ends are also to be questioned in terms of the coherence and efficacy of the means and their productions. The techniques and the sciences each already inherent very specific means, which in turn cannot be separated from very specific ends; this complex is determined by capital (as a social relation) and its imperatives (among others, increasing productivity) in the last instance, so that certain technologies are adequate to it (without requiring a direct correspondence between technology and capital, and this constellation of adequacy-without-correspondence requires the

axiom of non-causality or unilateral duality).

Thus, the problem of the dispositive applicability of technology in the context of a socio-economic-historical practice, in which Schlaudt assumes the positive scope of theoretical pragmatism in comparison to realism (ibid.: 139), is far from being eliminated. At the very least, however, it allows us to sidestep two seemingly diametrically opposed positions, the first position conceiving of technology and machines from the purely instrumental perspective of a neutral object of use that can be appropriated by capital-or, alternatively, by the proletariat-while the second position analyzes machines exclusively as real subsumed, form-determined capital. Bahr, on the other hand, speaks of the differential neutrality or the non-neutral indifference of machines in his writing *On the Handling of Machines*. (Bahr 1983: 14) If one assumes that the techniques and/or machines today mostly incorporate objectified relations of the rationality of capital (specific utility structure of machinery), then their neutrality, in which differential as-signifying semiotics and material discourses (of capital) are each already inscribed – and this is to be insisted upon – cannot be separated from their determinacy by capital (in the last instance).

Why is this so? From the point of view of the (Marxist) economist, one prefers to see the world purely from the point of view of capital. From the technologist's point of view, one prefers to see the economy purely as an extension of machinery. Marx apparently had an elegant dialectical solution to this dilemma: according to it, current machines would always replace an earlier and more primitive form of the division of labor, thus improving the accumulation of capital. In this simple way, machines always tell us something about capital. Philip Mirowski (Mirowski 1986) has shown how Marx extracted certain parts from the scientific models hegemonic in his time to explain the emergence of value, namely parts from thermodynamics and Newton's physics. Thus, Marx had brought into play a double measurement of value; the first based on hours of labor per day, the second on the average socially necessary, socially abstract labor. Thus, for Marx, there is a thermodynamic measurement (Carnot) and a gravitational measurement (Newton), a metric measurement and a topological measurement, one based on horse power and one based on a field of forces, a more substantial measurement and a more relational measurement. But this parallelization of the two physics and the related measurements, which are finally "synthesized" through money and capital, remains still quite insufficient in its specific reduction.

Abstractness, repetition, repeatability, broadest applicability, and plural procedures are characteristics of a technique or technology that are a priori related to monetary capitalization and to the corresponding productivity and growth imperatives of capital, which in turn process through the mechanisms of relative surplus value production. Bahr has already noted in his early writing that individual capital is permanently called upon to innovate and invest technologically through the constraint mediated by competition and its corrective mechanisms, which relative surplus-value production sets in the context of the laws of total capital. This implies, among other things, the need to integrate a widely dispersed plurality of processes of machinery into production, that is, to establish the interchangeability of machine parts and technological design services, bearing in mind that the same technical processes may well be used differently by firms to generate differential monetary profits. (Bahr 1970: 79) Today, these processes can be traced especially in the technological-economic developments in the financial industry. Here, the

application of information technologies leads to the blurring of commerce and banking and thus to a wide spectrum of specialized financial service providers and their diversely tailored products. The lowering of costs through those technologies vastly expands the scale for the provision of business and consumer credit. New techniques of loan calculation and securitization are brokering access for households and businesses to national and international credit markets faster than ever before. (Cf. Hartmann 2015: 79)

However, there is now also the suspicion that the specific constellation – the uni-lateral relation of capital and technology/technique – cannot be separated from the uneven historical phylogenesis of the machines, i. e. the historical datings of the machines are not to be understood as synchronistic, but rather as heterochronistic. (Cf. Guattari 2014: 56) Thus, even still the neoliberal financial capital regime is characterized by remarkably uneven patterns of the deployment of techniques and even still of scientific and technological development and research: On the one hand, there has been a rapid acceleration of innovations in the techniques of surveillance and digital mapping, transportation, logistics and communications, data collection and data calculation. On the other hand, there are techniques used in commodity production, agriculture, and industry (genetic engineering, etc.) that have nevertheless, over several periods, barely increased the growth in productivity that has so far characterized the long cycles in capitalist economic history. This is quite important to note, insofar as productivity remains an important measure of the growth of economies. With regard to the last techniques mentioned here, one could almost speak of a technological exhaustion of capital, the exhaustion of relations that have so far made the great leaps in capitalism possible, especially with regard to the socio-ecological surplus. Finally, from a temporal point of view, it is worth noting that the dominant temporality of capital does not necessarily coincide with that of the highest technological development; the revolutionary policies can even pass through seemingly archaic sections of time.

Uneven development remains virulent precisely when the anthropologically motivated conceptualization of machines as instruments, that is, the teleological and purposive use of the means of production for fixed human purposes, becomes entirely questionable. Finally, a discourse of technology that imagines machines as a projection or reflection of the body or of human cognition may today be considered definitively settled. On the other hand, because the socio-economic logic of capital is not directly mirrored in the machine, and not even in technologic, the floating nature of a discourse emerges which, on the one hand, suspects that capital is somehow present in the machine as a social and at the same time logical relation, but which, on the other hand, continues to assume the transparent neutrality of machines or their mere instrumentality. Against this diffuse background, even those Marxists for whom politics has an ambiguous character – virtual and actual at the same time – argue that ultimately, at least, technologies and machines should be freed from such virulences. Thus, the Promethean myth continues to proliferate underground when currently leftist accelerationists, under the rubric of “post-capitalist complexity increase and normativity,” make allegedly neutral techniques and technologies their own by wanting to bring them to a socially emancipatory application. At the same time, the accelerationists turn the imperative “forward” into a teleological “upward”. Peter Sloterdijk has pointed out that a theory that floats on such a current of progressivism (which the

accelerationists, however, offer as a rather home-baked theoretical achievement) has to struggle with a paradox: The history of technological development simply cannot be written as that of a (linear) progress that necessarily also still pushes toward emancipation, whatever that is.

(Sloterdijk 2009: 588)

From the outset, it is not possible to affirm a technocratic position, which is often favored, especially in Marxism, according to which machinery, which is neutral in itself, is to be confronted with its function in the exploitation process of capital, whereby one has to assume the superfutation of the exploitation-conditioned form determinations of capital, that is, that the exploitation of capital only superforms the structure of the means of production (and ultimately leaves the content untouched). Thus, in fact, the logic of the monetary valorization of capital would not be necessarily constitutive for the design of mechanized production processes, and therefore the corresponding machine systems could be freed from monetary valorization or capitalization and transformed into a “post-industrial capitalism” without any structural change. This position adopts certain theoretical aspects of Leninist policies of industrialization in the Soviet Union largely unquestioned. The diametrically opposed position of critical theory, against which consequently the attacks of accelerationism are mainly directed, should not be concealed here. In the context of critical theory, the complex of theoretical science, technology and engineering is often understood as completely absorbed by capital, in that it itself takes on the form of capital in real terms. Thus, Stefan Breuer, following Adorno's Critical Theory, has remarked on the relationship between economy and technology that today both fields are to be understood as moments of a totality, whereby this totality has progressed from abstraction from the real to realization of the abstract since the advent of the transclassical machine, thus finally closing the gap between capital and technology. (Breuer 1992: 98ff.)

With all these still very vague formulations it can finally be suggested that at this point the Kantian heuristic of the as-if would have to be brought into play again, if one wants to speak of machines as materialization of capital, i. e. machines would be conceptualized as if they were immediate causal expressions of the economy. For the producer, in turn, this means that he would have to judge his labor as if he actually created the expediency of his products himself, while he realiter only executes the functions of capital. (Cf. Bahr 1970: 66) Even the ontological discourse on technology, the theoretical sciences, and technology, insofar as they believe they do not have to take into account the epistemic interests of capital, are not spared from the as-if determinations, insofar as here the evaluation of technology is made as if it were not subject to any causality or determination by capital. However, merely introducing the heuristic of “as if” into the analysis of the technical/technological is unlikely to get one very far, insofar as determination (validity) and causality (genesis) are not consistently related here in order to arrive at genuinely new hypotheses, deductions, conclusions, and tests in the technology debate as well. (Cf. Schlaudt 2014a: 281) It can further be assumed that technical objects/technology are constituted by specific material-discursive practices, whereby these practices are always socio-economic practices as well, that is, they are determined by monetary capital in the last instance in the historically heterogeneous formation “capitalism”. The material-discursive practices are condensed in apparatuses in which, especially today, the coupling of labor and technology leads to overwhelmingly inhuman constellations; think, for example, of climate science, which consists

of a matrix of satellites, computers, terrestrial weather stations, forms of international cooperation within the sciences, agreed-upon standards, and so on.

In the Postscriptum of *Control Societies*, Deleuze notes that the multiple resonances between socio-economic structures and (technological) machines, and indeed in the interstice of technological acceleration and socio-economic transformation, have become so intense today that any attempt to conceptually establish either an immediate unity or a crude opposition of technology and economy is in massive crisis. Deleuze attempts to circumscribe the relation between the economy (its social relations) and the machinic complexes with the metaphor of “dramatization.” The question that immediately arises here is what can be done with this metaphor at all. Perhaps dramatization can be thought in terms of an asymmetrical determination of technology by economy (and not vice versa), possibly in the sense of Laruelle’s determination in the last instance and in contrast to, say, a symmetrical explanation of the two fields by a third party.

Concerning the latter position, we have to refer to Bruno Latour, who chooses a symmetrical approach with his theory of the co-production of nature, technology and society, whereby he, following Michel Serres, first speaks quite generally of a “fast whirl” of the mutual constitution of subject and object. (Cf. Latour 1990: 163) (Subject and object are to be thought as constituted by discursive-material practices). When Latour replaces the concept of technique (noun) with the verb “to technicize,” noting that “techniques do not exist as such, that there is nothing that can be determined philosophically or sociologically as an object, an artifact, or a piece of technique” (Latour 2002: 233), he first tries to capture techniques as media and mediators. The term “mediator” refers to the fact that socio-economic relations precisely cannot inscribe themselves one-to-one in technology, as if technology were, say, a blank white sheet that would receive its only identifying description through labeling. Rather, Latour sees non-human actors at work in technology as mediators “gifted with the ability to translate, redefine, unfold anew, or else betray what they transmit.” (Latour 2008: 109) If one foregrounds the notion of medium, then machines are to be conceived as quasi-objects, as Latour calls them, disposable means that multiply “circumstances” precisely when their multiplicity is interpreted as complex messages. In doing so, the things defined as quasi-objects may have the property of being mediums of potential events that do not necessarily depend on human actors, but certainly influence their actions, so that the dichotomy between subject and object ultimately dissolves.

Thus, technical objects, which Latour by no means understands as passive things, are attributed a potential for action to be determined in each case, whereby a society already requires subjects, objects, and quasi-objects in each case in order to attain a certain stability. (Ibid.: 141). With this symmetrical position, Latour wants to overcome the dualisms of nature and society, subject and object, technology and economy, etc., by opening up nature and society in their common historical dimension. And the concept of the collective also serves this purpose, whereby the collective actually only exists in the plural, in the form of unpredictable dynamics and procedures that serve to assemble technological knowledge between people and quasi-objects. In this context, the verb “to assemble” refers not only to practical activity (technology as the practical use of devices), but above all to the re-interpretation of the world (technology). In the natural science context, each fact emerges as a theoretical artifact in the laboratory while remaining



integrated into the context in which it was discovered. Here Latour assumes less processes in the social determinist sense (technology as coagulated social action or as condensed power relations), but he sees technology itself as the motor in which social constellations receive a certain stability through the order of actors and observers. Technical objects, he argues, are therefore always already to be conjugated with subjects and collectives. (Ibid.: 89) However, Latour has to seriously ask himself whether the symmetry he claims between technical objects and social actors exists in this way at all. Technical objects or things cannot easily bring in claims to validity vis-à-vis human actors and social relations, so they are to be distinguished from actors and material-discursive practices as well. Nor do research objects and research means belong to the same category of things. Research means are appropriated nature, research objects are not. (Schlaudt 2014a: 89) Schlaudt sees Latour's ANT theory as an attempt to reintroduce the positions of epistemological realism through the back door after all, insofar as Latour forgets that technical artifacts refer to facts only by virtue of historically specific, material-discursive practices.

It should be clear that in their function of indicating economic relations, machines are by no means to be understood as a direct expression of the economy, while at the same time it is necessary to think beyond any purely instrumentally oriented notion of machines as neutral means of production. When Marx writes that machinery is not identical to its existence as capital (see Terranova 2014: 130), he himself seems to ascribe a certain neutrality to machinery vis-à-vis capital, which is also echoed when he speaks of the application of machinery by capital in order to further claim its world-historical potentiality (the proletariat then has the world-historical task of separating the capitalists from the productive forces). In such a way, however, the relation of economy and machinery would be simplified again in favor of the autonomy of the latter.

One can first note that the nature of technology cannot be fitted into either a linear evolutionist scheme (increase of potentialities), a digital-dialectical scheme (explosion of the contradictions of capital in the context of the unleashing of productive forces), or one of real subsumption of technology under capital; rather, technical objects, or rather the machines at least hint at a certain art of disguise when they drift beyond the blunt end-means relationship, although the machines are overdetermined by the technologies and the theoretical sciences and are determined in the last instance by capital. The technical machines are thus not completely open; rather, a certain technological structuring is inscribed in them by capital as an overall complexion in the last instance. But because the machines do not represent purely passive objects, it is a matter of "inscribing" the monetary capital relation in relations that insist as specific concatenations of man-machine and machine-machine constellations. Thus, the inscription – folding or incision of capital – does not from the outset aim at the machine as a thing, rather it indicates monetary methods, measurements, algorithms, diagrammatics, and material-discursive practices including their objectification in apparatuses – strategies, methods, and apparatuses that individual capitals must necessarily employ due to the immanent "laws" of total capital to increase relative surplus value in order to be able to exist in differential capital accumulation (competition) at all. This at least indicates that a differentiated concept of technique and technology has to be developed, also with regard to the complex composition and concatenation of the machinic and the technological itself. From the outset, the machine exists

only in assemblages.

And further insisting is the differential or non-indifferent neutrality or the non-neutral indifference of machines that Hans-Dieter Bahr once spoke of. (Bahr 1983:14) To a certain extent, Bernhard Stiegler also refers to this, describing technology as a pharmakon (poison and cure at the same time), which has both poisoning (repressive) and healing (opening up possibilities) moments. (Stiegler 2012) For Stiegler, such a qualification refers to technical categories that are per se open to the political, insofar as the transindividuation of technical arrangements and objects (Simondon) has always eluded the economic as well. With the concept of transindividuation, as Simondon uses it, in view of our post-industrial situation, we must first speak of technical objects whose respective elements always form recursions and maintain internal resonances with one another, while at the same time the technical objects stand in external resonances with other technical objects, possibly in order to be able to play out their inherent technicality as open machines in the machine ensembles. (Simondon 2012) And when Hans-Joachim Lenger states that the medial technologies wrote a different text than that of capital, then the interactions between economy, technology, and technoscience (technology) are to be examined again, taking this as a starting point. It can be assumed that these relations can be captured by the concept of superposition, insofar as capital-economy still determines in the last instance and infects the techniques/machines per se by means of the structures of the techno-logos. In this respect, however, capital cannot do without the deployment of philosophies to which Laruelle ascribes an onto-techno-logical disposition.

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